

The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

- 1 1. (currently amended) A fingerprint input apparatus, comprising:
 - 2 a fingerprint sensor for reading a fingerprint ~~and then outputting~~
 - 3 ~~fingerprint image data corresponding to said fingerprint, said~~
 - 4 ~~fingerprint being made by applying moisture to a finger and~~
 - 5 ~~applying pressure to the finger at a position on the sensor;~~
 - 6 a fingerprint analyzer for
 - 7 acquiring a fingerprint image corresponding to said read
 - 8 fingerprint,
 - 9 analyzing the quality of a said fingerprint image
 - 10 ~~represented by said fingerprint image data based on an image~~
 - 11 quality and/or feature points of said fingerprint image, and
 - 12 ~~creating~~ generating an evaluation result if a result of
 - 13 said analysis indicates a quality malfunction representing the
 - 14 ~~cause of said quality failure and/or countermeasure against said~~
 - 15 ~~cause when said analysis result indicates a quality failure, said~~
 - 16 ~~evaluation result specifying whether said fingerprint is to be~~
 - 17 ~~retaken with an increase or decrease in said moisture, an~~
 - 18 ~~increase or decrease in said pressure, and a direction of change~~
 - 19 ~~in said position;~~ and
 - 20 an evaluation result display for displaying said evaluation result in a
 - 21 plurality of ways,
 - 22 wherein,

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23 if said quality malfunction indicates a first quality
24 malfunction associated with said image quality, said fingerprint
25 analyzer generates a first evaluation result that indicates a cause
26 of said first quality malfunction and/or a countermeasure for
27 said cause of said first quality malfunction as said evaluation
28 result, and
29 if said quality malfunction indicates a second quality
30 malfunction associated with said feature points, said fingerprint
31 analyzer generates a second evaluation result that indicates a
32 cause of said second quality malfunction and/or a
33 countermeasure for said cause of said second quality
34 malfunction as said evaluation result,
35 wherein said first quality malfunction includes at least one of
36 a quality malfunction associated with a fingerprint
37 display area of said fingerprint image and
38 a quality malfunction associated with a shape of ridges
39 of said fingerprint image, and
40 wherein the quality malfunction associated with the shape of ridges of
41 said fingerprint image includes a continuity malfunction of a ridge of said
42 fingerprint image.

1 2. (original) The fingerprint input apparatus defined in Claim 1, wherein said
2 fingerprint analyzer comprises:
3 a quality evaluation and processing means for performing the analysis
4 based on the image quality and/or feature points of a fingerprint
5 image represented by said fingerprint image data; and
6 an evaluation result display and processing means for driving said
7 evaluation result display based on said evaluation result.

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1 3. (original) The fingerprint input apparatus defined in Claim 2, wherein said
2 fingerprint sensor comprises a light source and an image pickup device.

1 4. (original) The fingerprint image apparatus defined in Claim 2, wherein
2 said quality evaluation and processing means performs the analysis based on
3 any one of the density of said fingerprint image, a fingerprint display area
4 indicated by said fingerprint image, the shape of ridges indicated by said
5 fingerprint image, and the position of a spiral shape indicated by said
6 fingerprint image.

1 5. (previously presented) The fingerprint image apparatus defined in Claim 2,
2 wherein said plurality of ways for evaluation result display is drawn from the
3 group of light emitting elements for visually displaying said evaluation result,
4 a display panel for visually displaying said evaluation result, and an acoustic
5 device for acoustically displaying said evaluation result.

1 6. (previously presented) The fingerprint image apparatus defined in Claim 2,
2 wherein said plurality of ways for evaluation result display includes a display
3 panel for visually displaying said evaluation result and light emitting elements
4 for visually displaying said evaluation result.

1 7. (previously presented) The fingerprint image apparatus defined in Claim 6,
2 wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 8. (original) The fingerprint image apparatus defined in Claim 1, wherein
2 said fingerprint sensor comprises a light source and an image pickup device.

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1 9. (currently amended) The fingerprint image apparatus defined in Claim 8,
2 wherein said ~~quality evaluation and processing means~~ fingerprint analyzer
3 performs the analysis based on any one of the density of said fingerprint
4 image, a fingerprint display area indicated by said fingerprint image, the shape
5 of ridges indicated by said fingerprint image, and the position of a spiral shape
6 indicated by said fingerprint image.

1 10. (previously presented) The fingerprint image apparatus defined in Claim
2 8, wherein said plurality of ways for evaluation result display is drawn from
3 the group of light emitting elements for visually displaying said evaluation
4 result, a display panel for visually displaying said evaluation result, and an
5 acoustic device for acoustically displaying said evaluation result.

1 11. (previously presented) The fingerprint image apparatus defined in Claim
2 8, wherein said plurality of ways for evaluation result display includes a
3 display panel for visually displaying said evaluation result and light emitting
4 elements for visually displaying said evaluation result.

1 12. (previously presented) The fingerprint image apparatus defined in Claim
2 11, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 13. (currently amended) The fingerprint image apparatus defined in Claim 1,
2 wherein said ~~quality evaluation and processing means~~ fingerprint analyzer
3 performs the analysis based on any one of the density of said fingerprint
4 image, a fingerprint display area indicated by said fingerprint image, the shape

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5 of ridges indicated by said fingerprint image, and the position of a spiral shape
6 indicated by said fingerprint image.

1 14. (previously presented) The fingerprint image apparatus defined in Claim
2 13, wherein said plurality of ways for evaluation result display is drawn from
3 the group of light emitting elements for visually displaying said evaluation
4 result, a display panel for visually displaying said evaluation result, and an
5 acoustic device for acoustically displaying said evaluation result.

1 15. (previously presented) The fingerprint image apparatus defined in Claim
2 13, wherein said plurality of ways for evaluation result display includes a
3 display panel for visually displaying said evaluation result and light emitting
4 elements for visually displaying said evaluation result.

1 16. (previously presented) The fingerprint image apparatus defined in Claim
2 15, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 17. (previously presented) The fingerprint image apparatus defined in Claim
2 1, wherein said plurality of ways for evaluation result display is drawn from
3 the group of light emitting elements for visually displaying said evaluation
4 result, a display panel for visually displaying said evaluation result, and an
5 acoustic device for acoustically displaying said evaluation result.

1 18. (previously presented) The fingerprint image apparatus defined in Claim
2 1, wherein said plurality of ways for evaluation result display includes a
3 display panel for visually displaying said evaluation result and light emitting
4 elements for visually displaying said evaluation result.

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- 1 19. (previously presented) The fingerprint image apparatus defined in Claim
2 18, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.
- 1 20. (currently amended) A fingerprint input method comprising the steps of:
2 reading a fingerprint and then outputting fingerprint image data
3 corresponding to said fingerprint, ~~said fingerprint being made~~
4 ~~by applying moisture to a finger and applying pressure to the~~
5 ~~finger at a position on a sensor;~~
6 analyzing the quality of a fingerprint image ~~represented by said~~
7 fingerprint image data based on an image quality and/or feature
8 points of said fingerprint image, and creating generating an
9 evaluation result if a result of said analysis indicates a quality
10 malfunction representing the cause of said quality failure
11 ~~and/or a countermeasure against said cause when said analysis~~
12 ~~result indicates a quality failure, said evaluation result~~
13 ~~specifying whether said fingerprint is to be retaken with an~~
14 ~~increase or decrease in said moisture, an increase or decrease in~~
15 ~~said pressure, and a direction of change in said position; and~~
16 displaying said evaluation result in a plurality of ways,
17 wherein,
18 if said quality malfunction indicates a first quality
19 malfunction associated with said image quality, said fingerprint
20 analyzing step generates a first evaluation result that indicates a
21 cause of said first quality malfunction and/or a countermeasure
22 for said cause of said first quality malfunction as said
23 evaluation result, and

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24 if said quality malfunction indicates a second quality
25 malfunction associated with said feature points, said fingerprint
26 analyzing step generates a second evaluation result that
27 indicates a cause of said second quality malfunction and/or a
28 countermeasure for said cause of said second quality
29 malfunction as said evaluation result,
30 wherein said first quality malfunction includes at least one of
31 a quality malfunction associated with a fingerprint
32 display area of said fingerprint image and
33 a quality malfunction associated with a shape of ridges
34 of said fingerprint image, and
35 wherein the quality malfunction associated with the shape of ridges of
36 said fingerprint image includes a continuity malfunction of a ridge of said
37 fingerprint image.